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PATENT & TRADEMARK OFFICE

FIG. 1

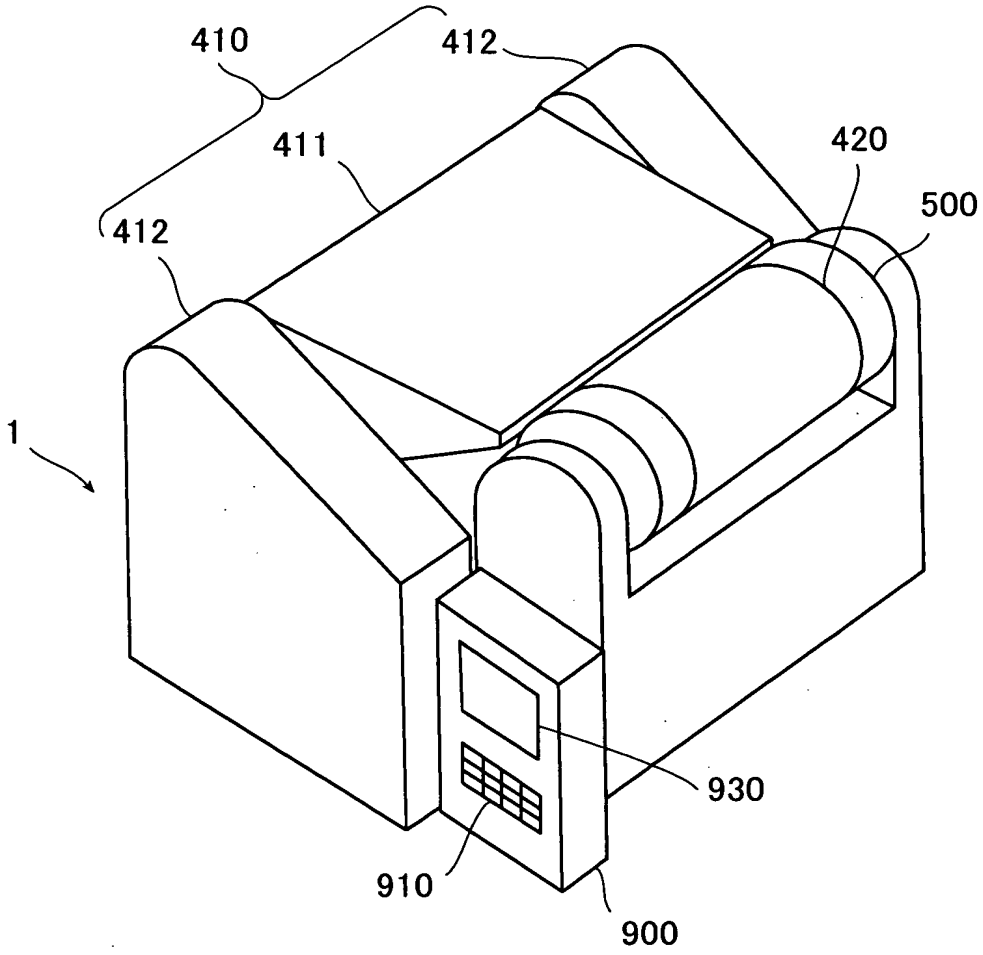


FIG. 2

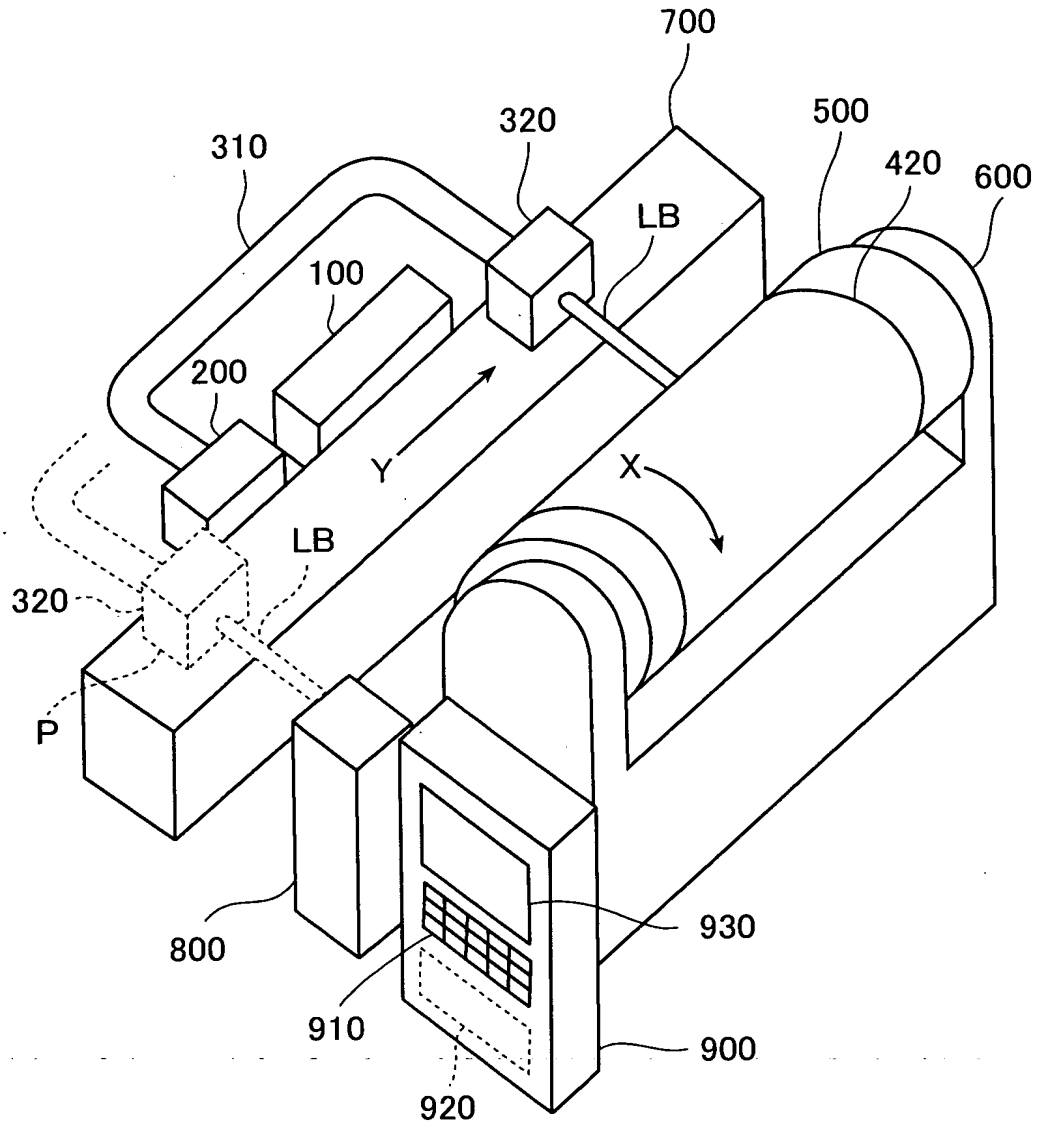


FIG. 3

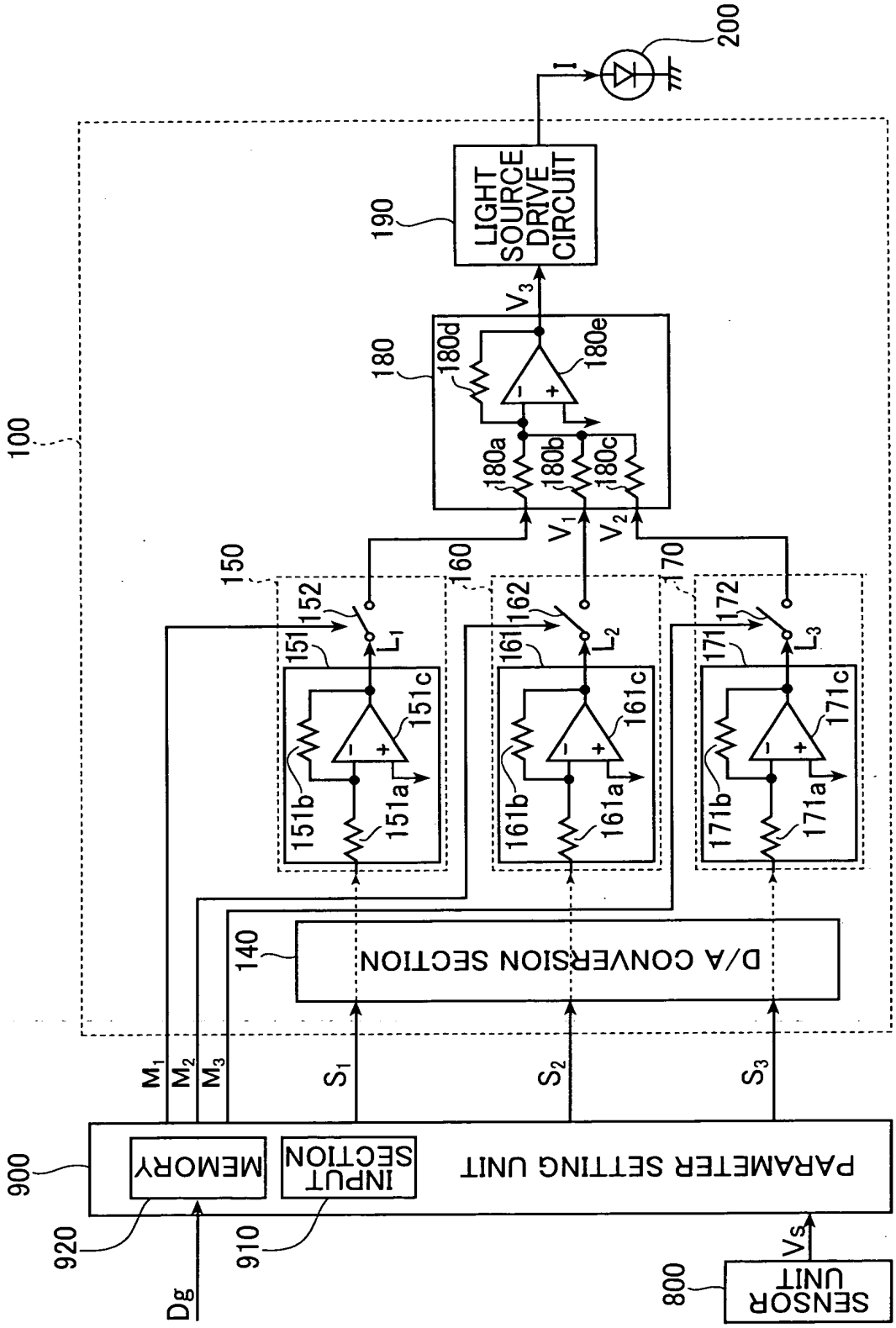
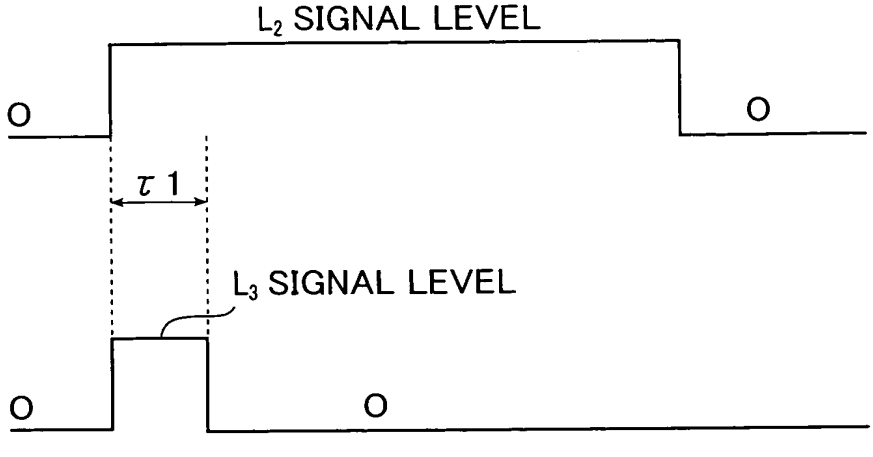

200
I
LIGHT SOURCE DRIVE CIRCUIT
190
V_3
180
180d
180e
180a
180b
180c
100
V_1
V_2
150
160
170
152
162
172
151
161
171
L_1
L_2
L_3
151c
161c
171c
151b
161b
171b
151a
161a
171a
140
D/A CONVERSION SECTION
M_1
M_2
M_3
S_1
S_2
S_3
900
MEMORY
INPUT SECTION
PARAMETER SETTING UNIT
920
910
Dg
Vs
800
SENSOR UNIT

FIG. 4A



V_1

FIG. 4B

V_2

FIG. 5

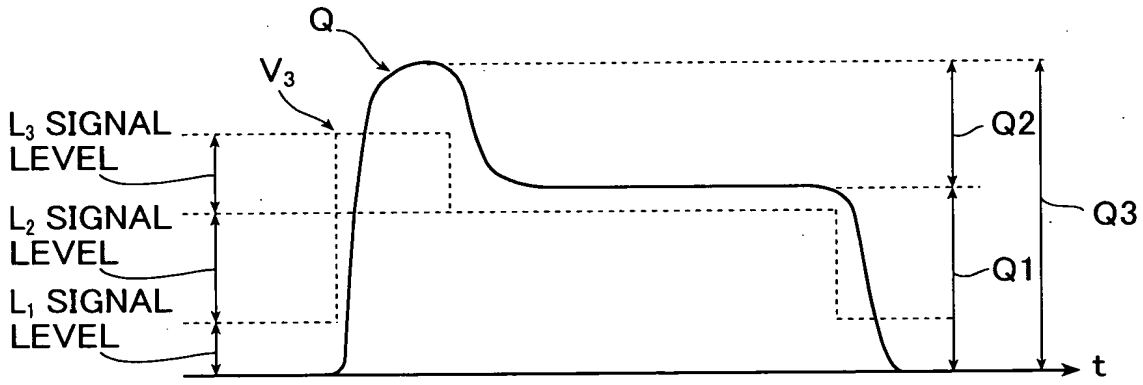
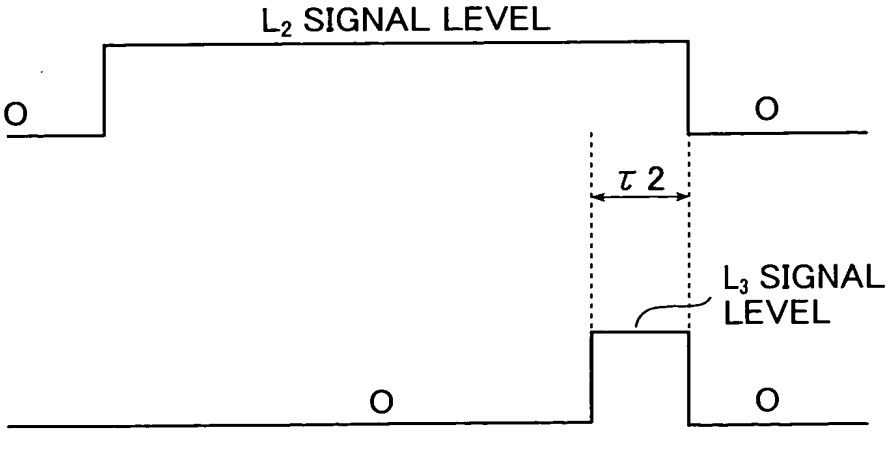


FIG. 6A



V_1

FIG. 6B

V_2

FIG. 7

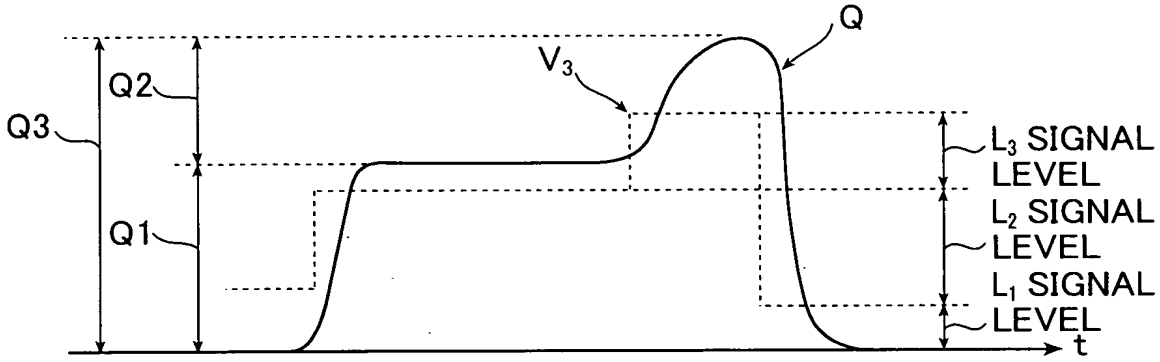


FIG. 8A

FIG. 8B

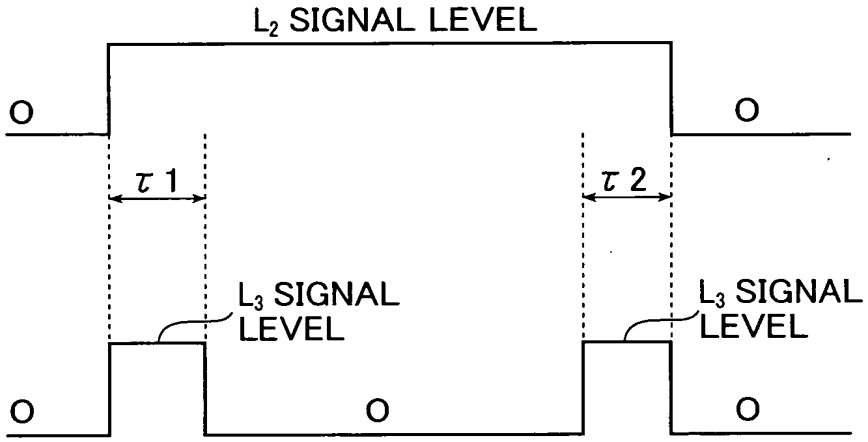


FIG. 9

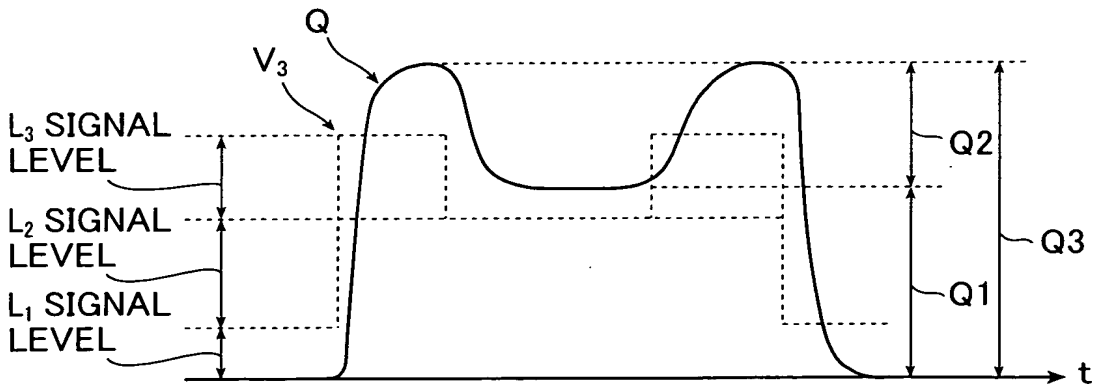


FIG. 10

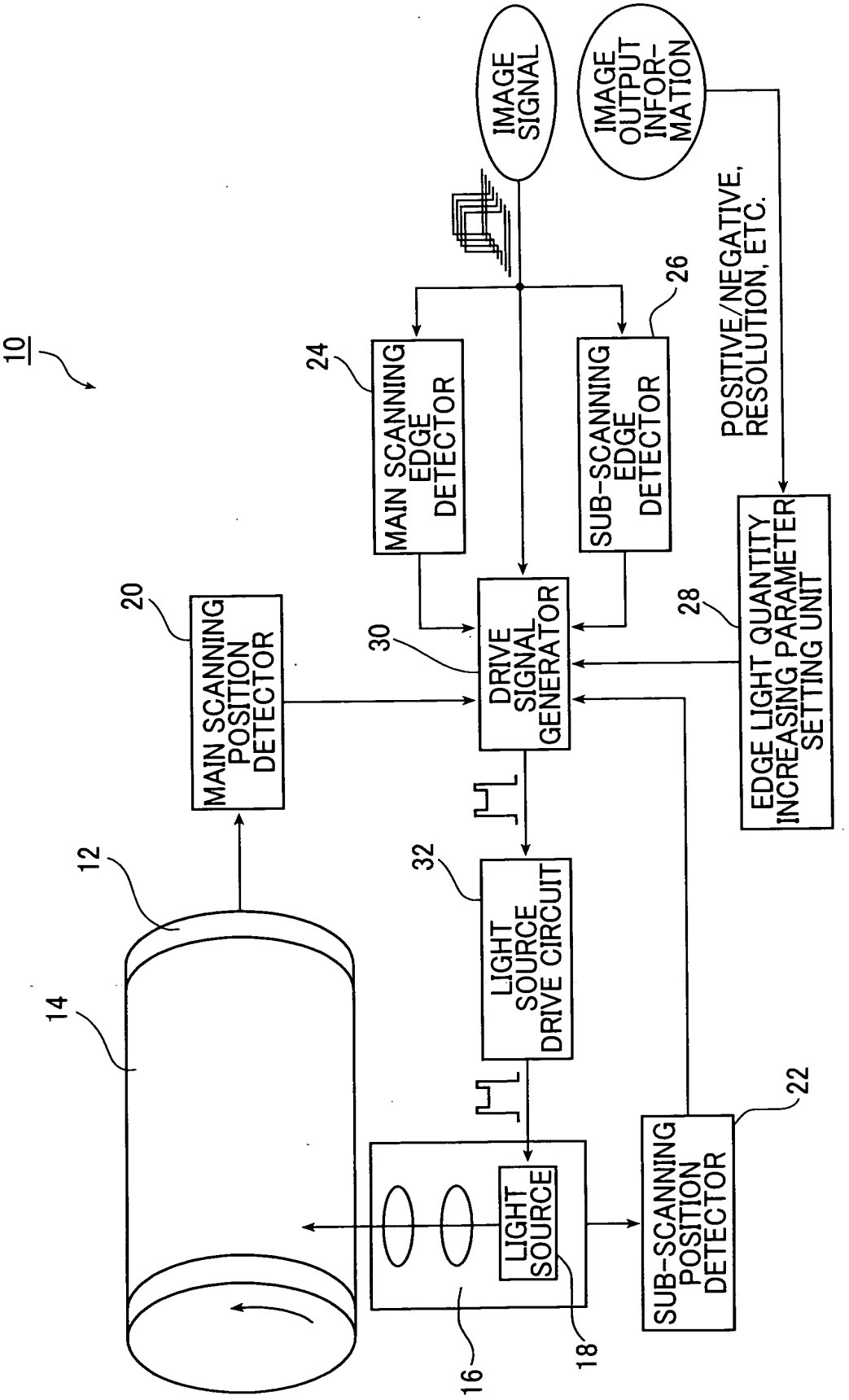

10
IMAGE SIGNAL
IMAGE OUTPUT INFOR-MATION
POSITIVE/NEGATIVE, RESOLUTION, ETC.
24
MAIN SCANNING EDGE DETECTOR
26
SUB-SCANNING EDGE DETECTOR
20
MAIN SCANNING POSITION DETECTOR
30
DRIVE SIGNAL GENERATOR
28
EDGE LIGHT QUANTITY INCREASING PARAMETER SETTING UNIT
12
32
LIGHT SOURCE DRIVE CIRCUIT
14
LIGHT SOURCE
16
18
22
SUB-SCANNING POSITION DETECTOR

FIG. 11A

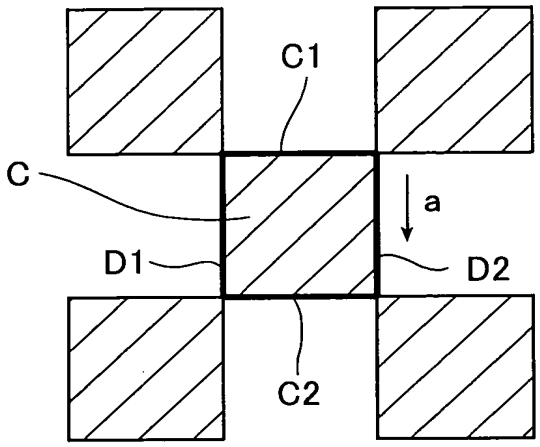


FIG. 11B

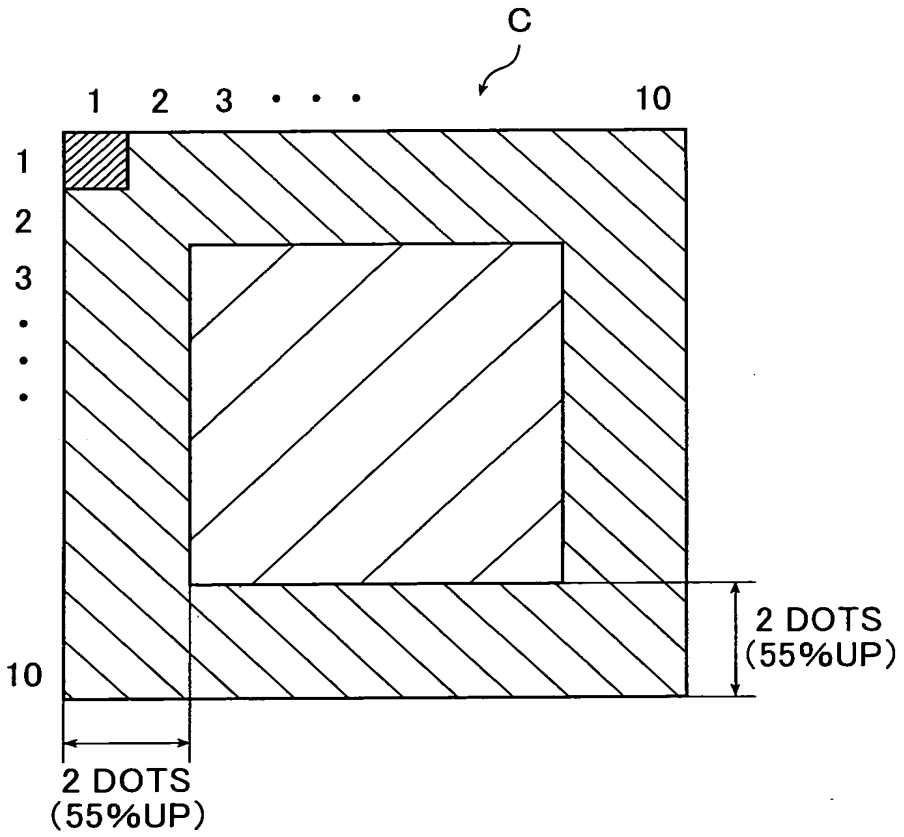


FIG. 12A

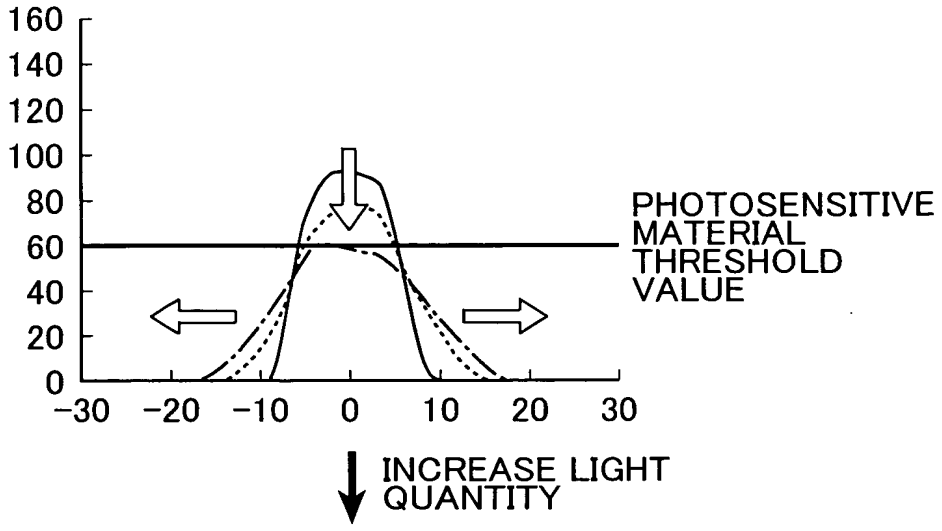


FIG. 12B

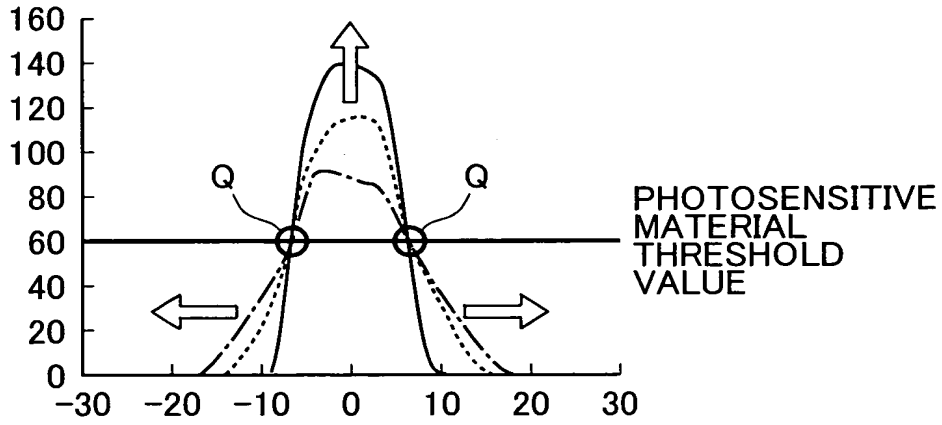


FIG. 13

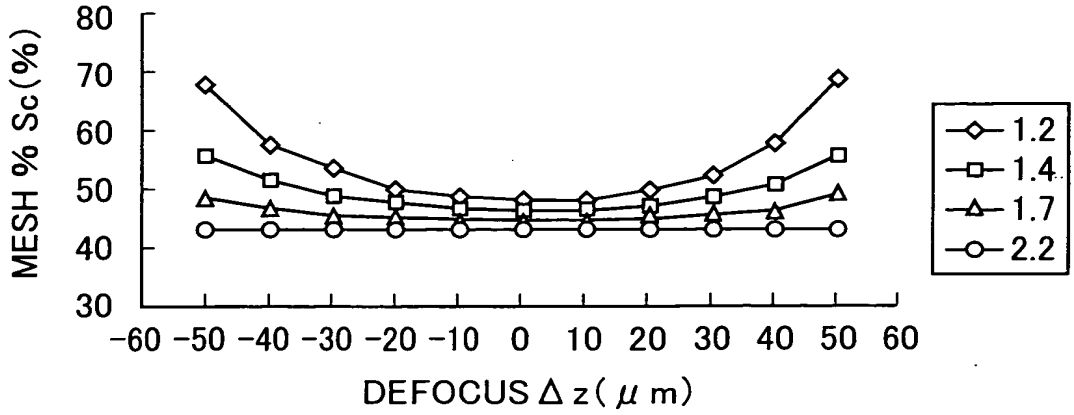


FIG. 14A

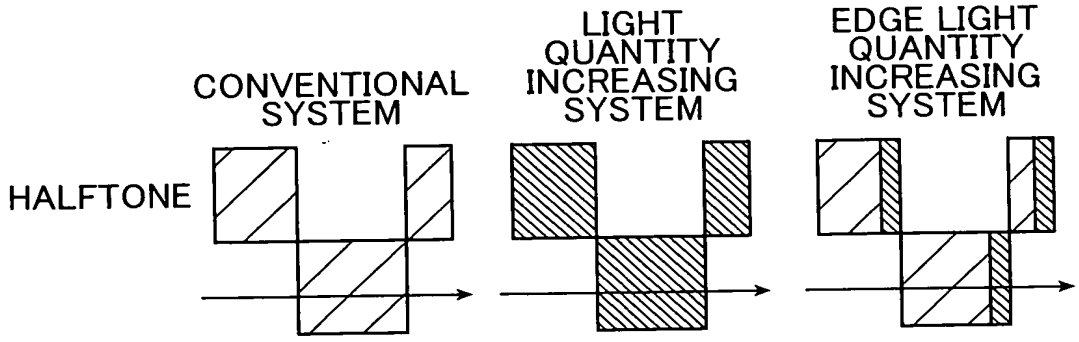


FIG. 14B

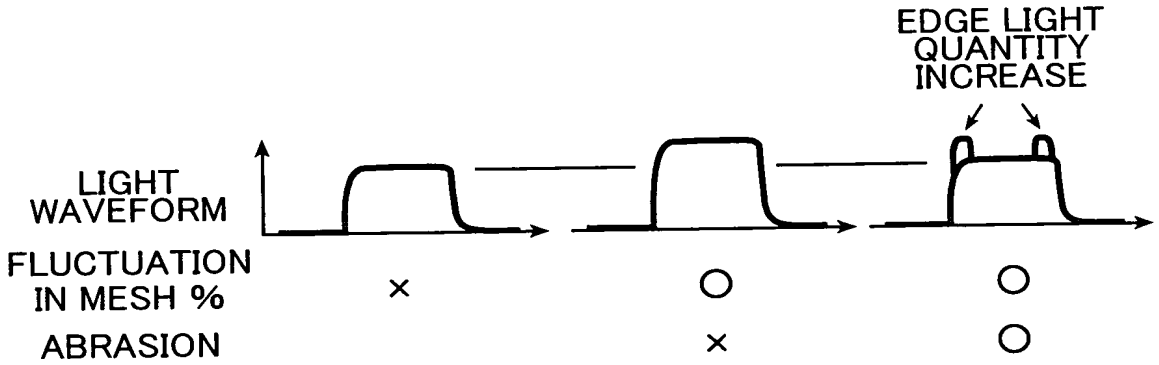


FIG. 15

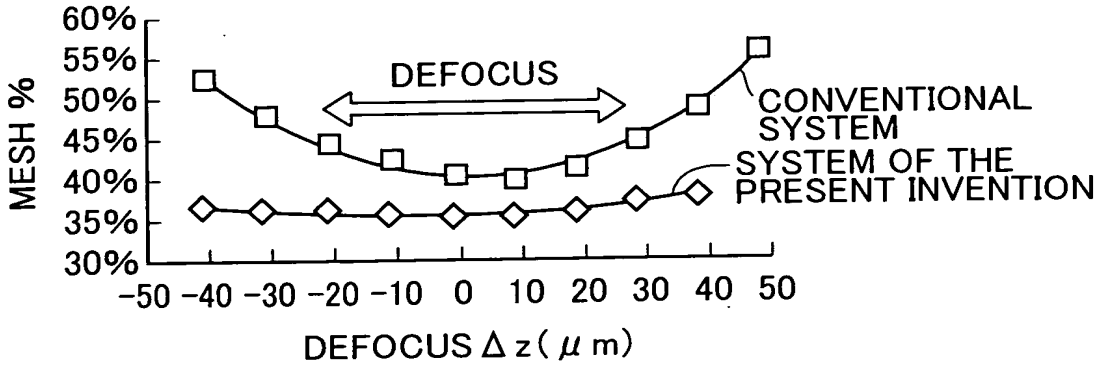


FIG. 16

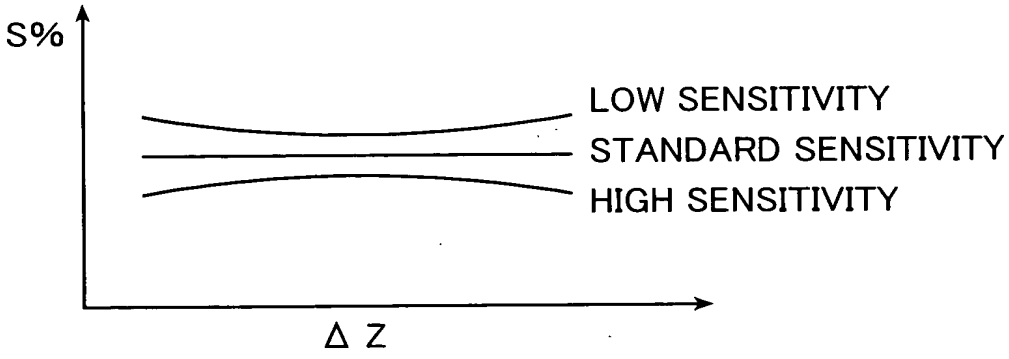

S%
LOW SENSITIVITY
STANDARD SENSITIVITY
HIGH SENSITIVITY
Δ Z

FIG. 17

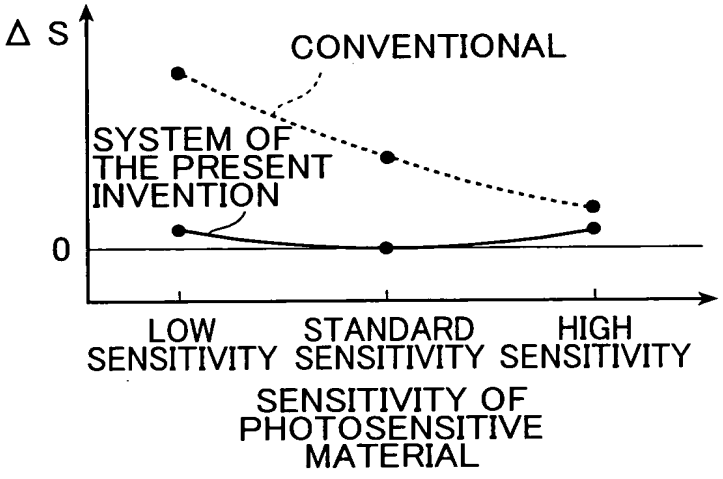

Δ S
CONVENTIONAL
SYSTEM OF THE PRESENT INVENTION
0
LOW SENSITIVITY
STANDARD SENSITIVITY
HIGH SENSITIVITY
SENSITIVITY OF PHOTOSENSITIVE MATERIAL

FIG.18

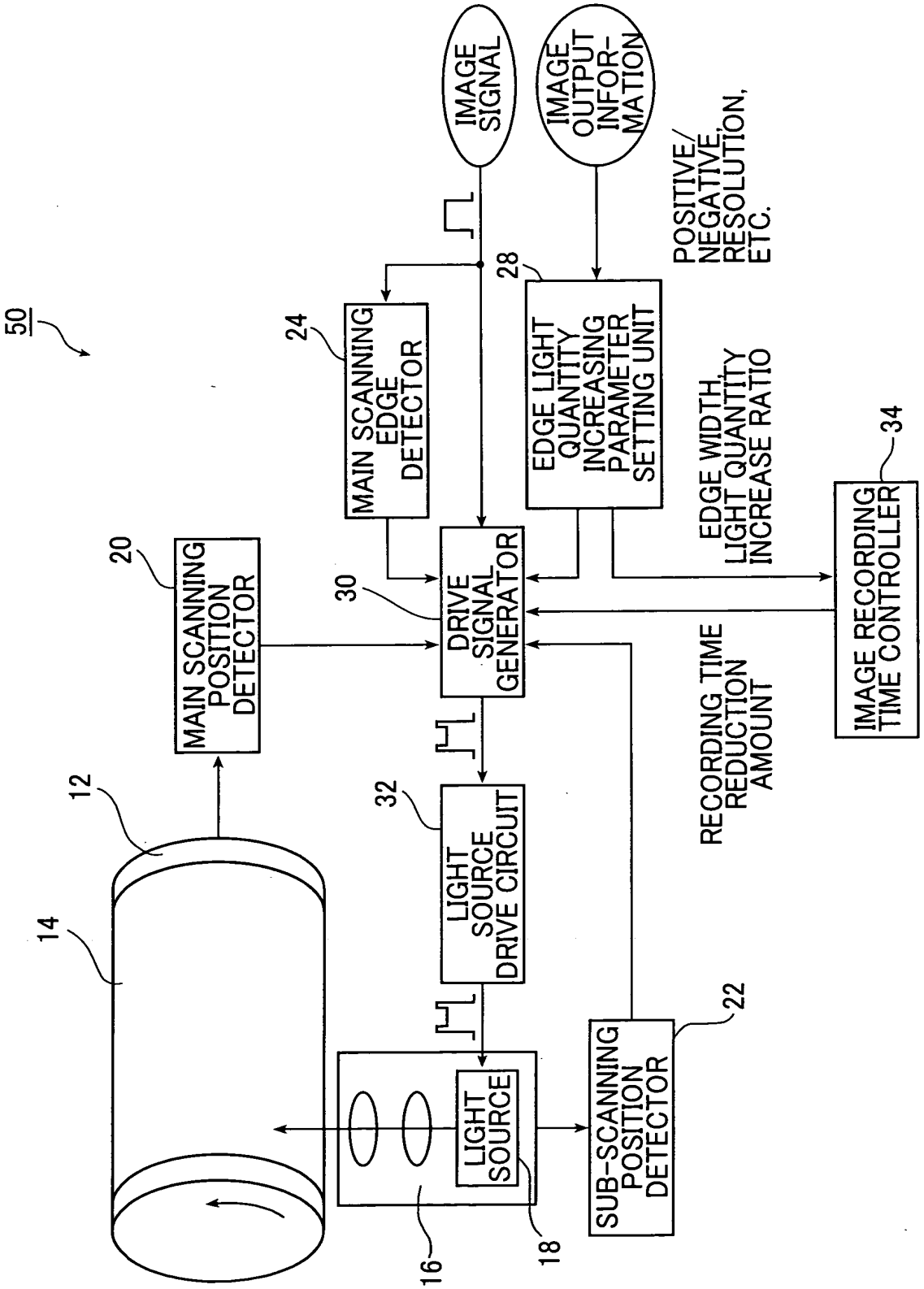

50
IMAGE SIGNAL
IMAGE OUTPUT INFOR-MATION
POSITIVE/ NEGATIVE, RESOLUTION, ETC.
28
24
MAIN SCANNING EDGE DETECTOR
EDGE LIGHT QUANTITY INCREASING PARAMETER SETTING UNIT
EDGE WIDTH, LIGHT QUANTITY INCREASE RATIO
34
IMAGE RECORDING TIME CONTROLLER
20
MAIN SCANNING POSITION DETECTOR
30
DRIVE SIGNAL GENERATOR
RECORDING TIME REDUCTION AMOUNT
12
32
LIGHT SOURCE DRIVE CIRCUIT
14
22
SUB-SCANNING POSITION DETECTOR
LIGHT SOURCE
16
18

FIG.19A

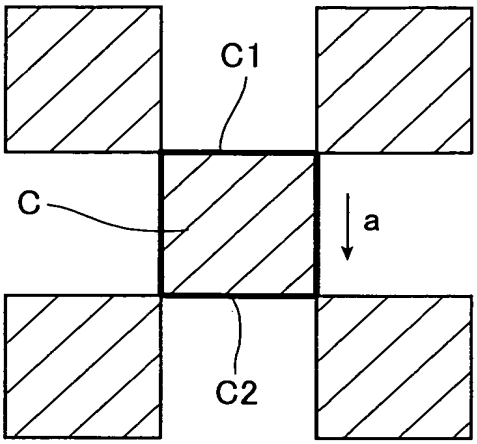


FIG.19B

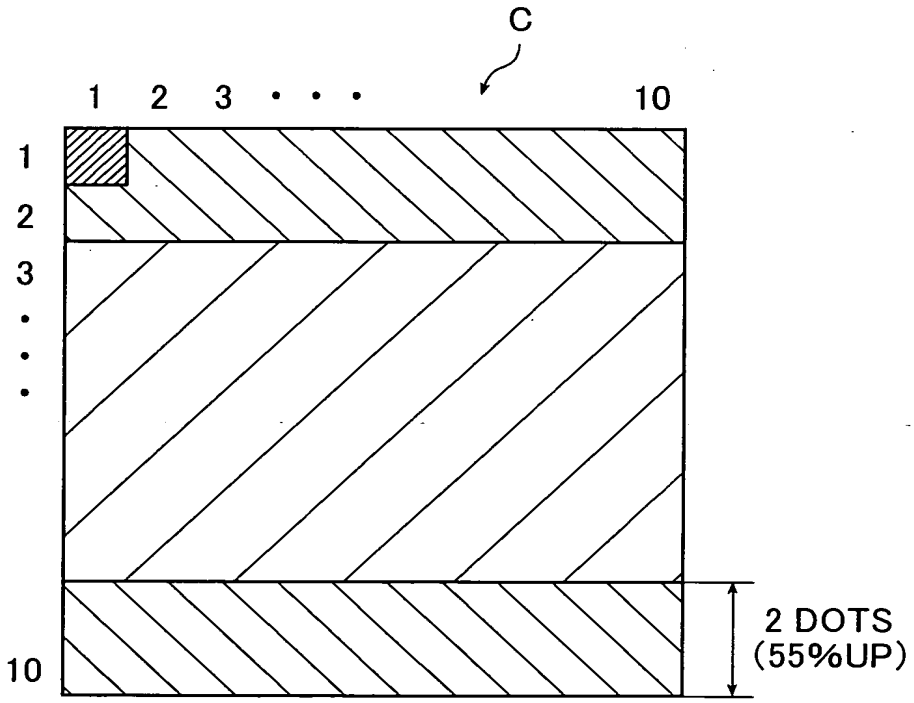


FIG. 20A

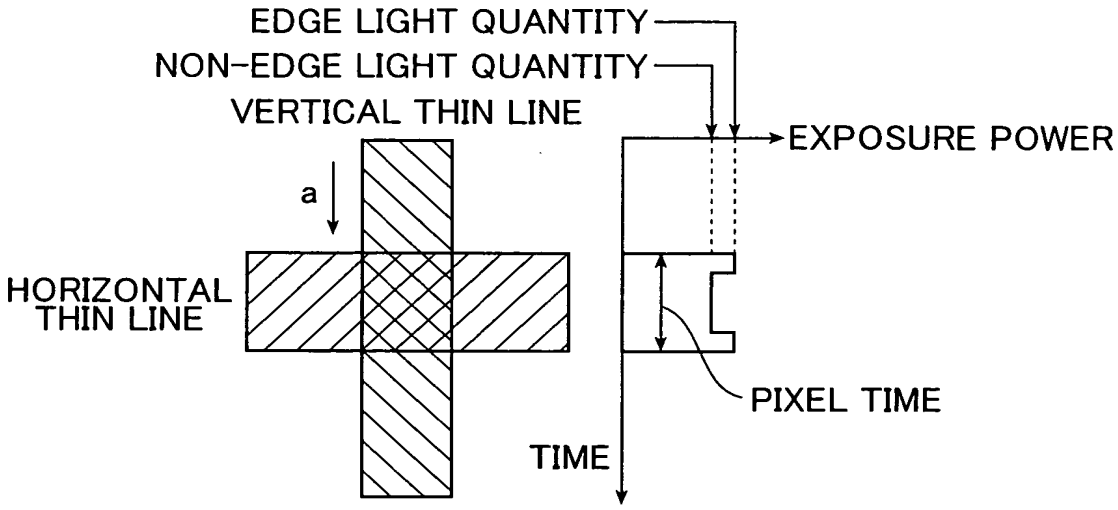


FIG. 20B

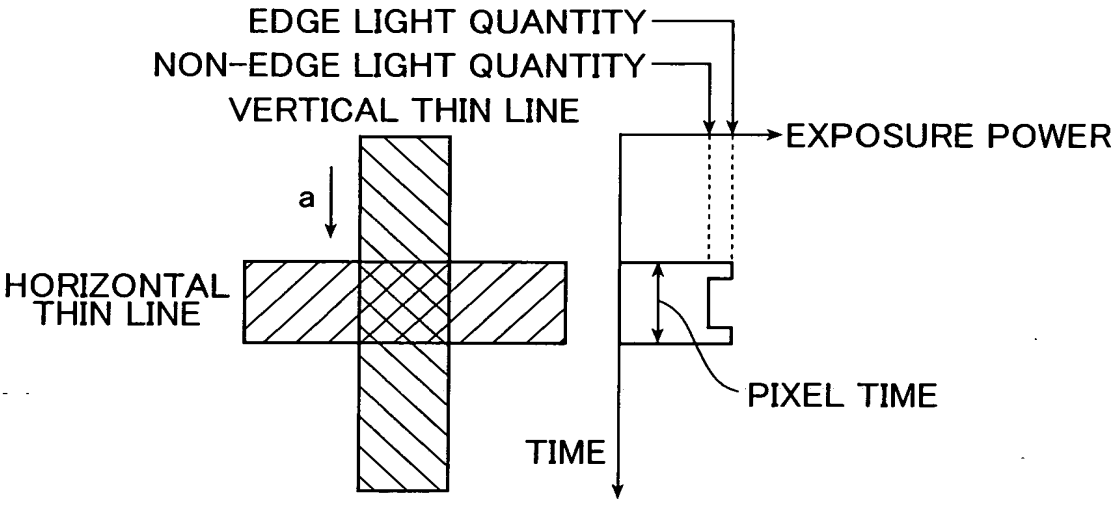


FIG. 21

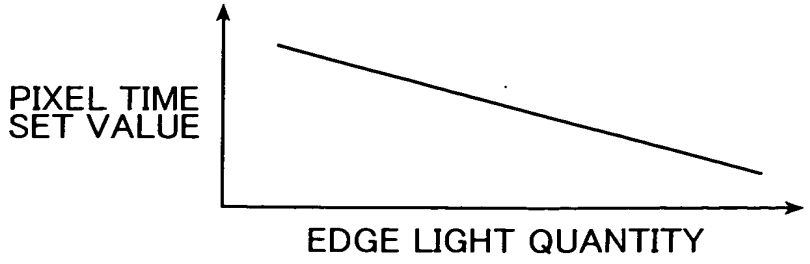


FIG. 22

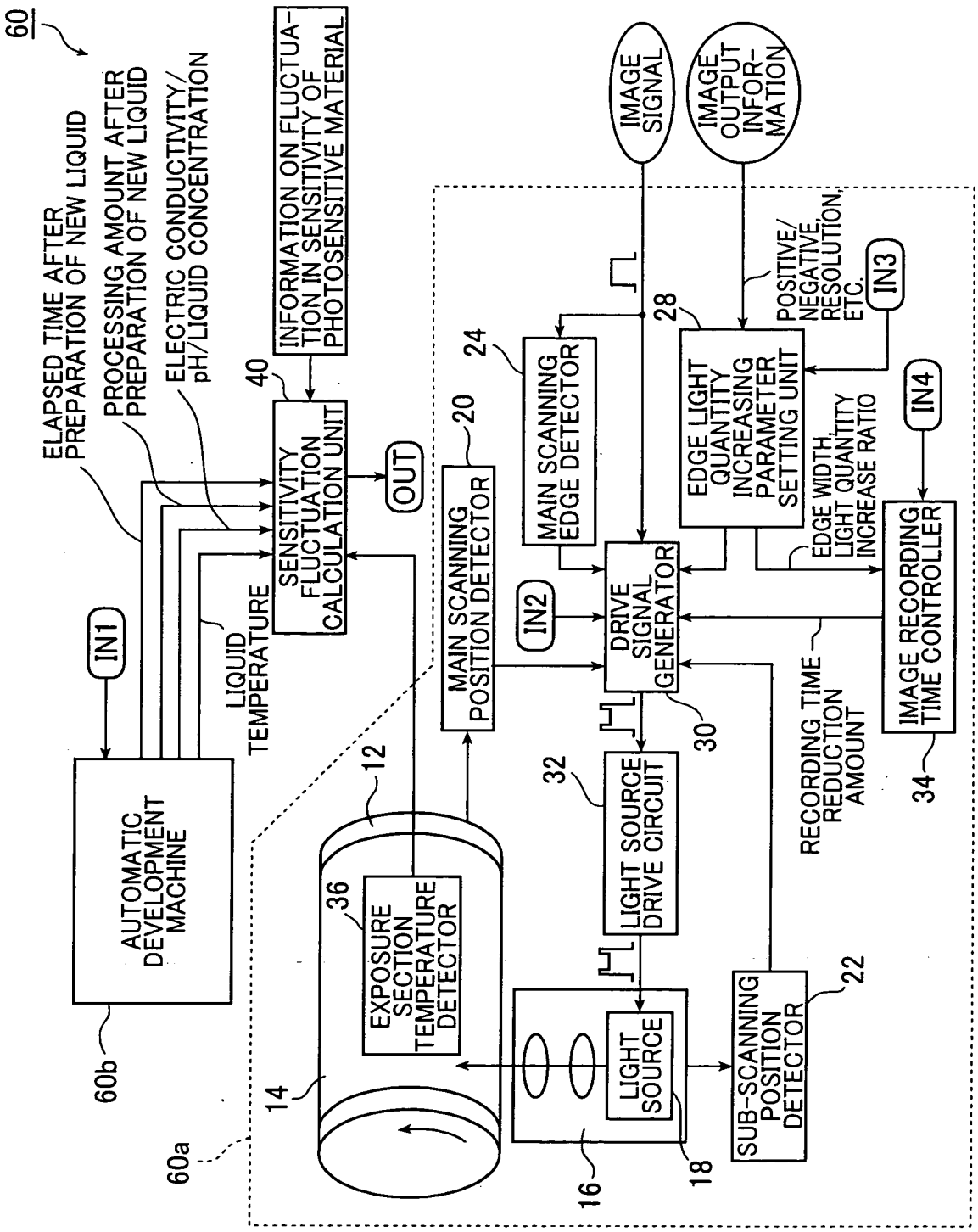

60
ELAPSED TIME AFTER PREPARATION OF NEW LIQUID
PROCESSING AMOUNT AFTER PREPARATION OF NEW LIQUID
ELECTRIC CONDUCTIVITY/ pH/LIQUID CONCENTRATION
INFORMATION ON FLUCTUATION IN SENSITIVITY OF PHOTOSENSITIVE MATERIAL
40
IMAGE SIGNAL
IMAGE OUTPUT INFORMATION
IN1
SENSITIVITY FLUCTUATION CALCULATION UNIT
OUT
LIQUID TEMPERATURE
MAIN SCANNING EDGE DETECTOR
24
20
MAIN SCANNING POSITION DETECTOR
28
EDGE LIGHT QUANTITY INCREASING PARAMETER SETTING UNIT
POSITIVE/ NEGATIVE, RESOLUTION ETC.
IN3
IN4
EDGE WIDTH, LIGHT QUANTITY INCREASE RATIO
IN2
DRIVE SIGNAL GENERATOR
IMAGE RECORDING TIME CONTROLLER
RECORDING TIME REDUCTION AMOUNT
30
34
32
LIGHT SOURCE DRIVE CIRCUIT
12
AUTOMATIC DEVELOPMENT MACHINE
36
EXPOSURE SECTION TEMPERATURE DETECTOR
LIGHT SOURCE
SUB-SCANNING POSITION DETECTOR
22
60b
14
16
18
60a

FIG. 23

	FACTORS OF FLUCTUATION IN SENSITIVITY	(DETECTION MEANS)	CORRECTION MEANS (CONTROL TARGET)
PHOTO-SENSITIVE MATERIAL	• LOT FLUCTUATION IN SENSITIVITY	(DENSITY METER FOR MEASURING DENSITY AFTER EXPOSURE DEVELOPMENT)	
	• CHANGE OVER TIME OF SENSITIVITY	(DENSITY METER FOR MEASURING DENSITY AFTER EXPOSURE DEVELOPMENT)	
	• TEMPERATURE AND HUMIDITY DEPENDENCY OF SENSITIVITY	(TEMPERATURE DETECTOR FOR DETECTING TEMPERATURE AT THE TIME OF EXPOSURE)	
EXPOSURE MACHINE	• TEMPERATURE DEPENDENCY OF LIGHT QUANTITY DETECTOR	(EXPOSURE SECTION TEMPERATURE DETECTOR)	• NON-EDGE PART POWER • EDGE PART POWER • EDGE PART LENGTH • IMAGE RECORDING TIME
AUTO-MATIC DEVELOP-MENT MACHINE	• FLUCTUATION IN LIQUID ACTIVITY	—	
	├ ELECTRIC CONDUCTIVITY/ pH/LIQUID CONCENTRATION	(ELECTRIC CONDUCTIVITY DETECTOR/pH DETECTOR/ ANALYSIS OF COMPONENTS)	• ELECTRIC CONDUCTIVITY (REPLENISHMENT OF LIQUID/ WATER)/pH (REPLENISHMENT OF LIQUID/WATER)/LIQUID CONCENTRATION(REPLENISH-MENT OF COMPONENTS)
	├ LIQUID TEMPERATURE	(TEMPERATURE DETECTOR)	• LIQUID TEMPERATURE
	├ ELAPSED TIME AFTER PREPARATION OF NEW LIQUID	(METER FOR MEASURING ELAPSED TIME AFTER PREPARATION OF NEW LIQUID)	
	└ PROCESSING AMOUNT AFTER PREPARATION OF NEW LIQUID	—	
	├ NUMBER OF TREATED SHEETS	(COEFFICIENT MULTIPLIER)	
	└ TREATED AREA	(PLATE WIDTH DETECTOR, PLATE PASSAGE TIME DETECTOR)	
	• FLUCTUATION IN DEVELOPMENT PROCESSING TIME	(CONVEYANCE SPEED DETECTOR)	• DEVELOPMENT TIME (CONVEYANCE SPEED)

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Appln. No. 10/685,649
Filed: October 16, 2003
Group Art Unit: 2852
Q78006
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FIG.24A

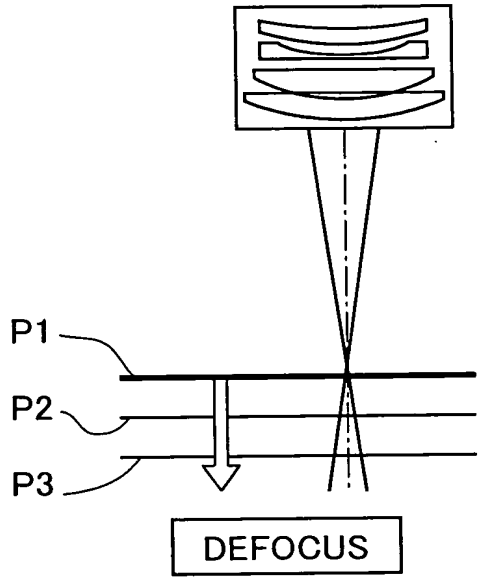

FIG.24B
PRIOR ART

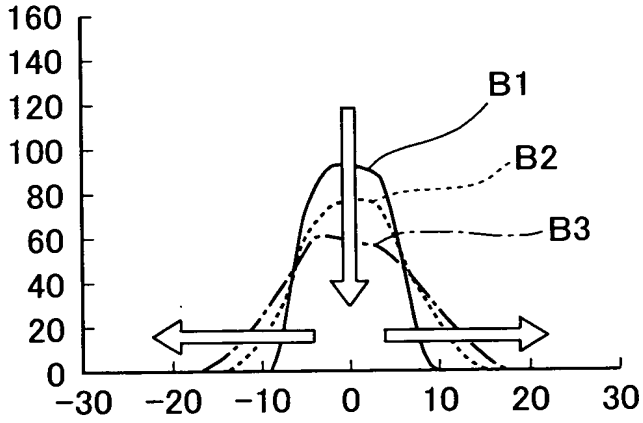
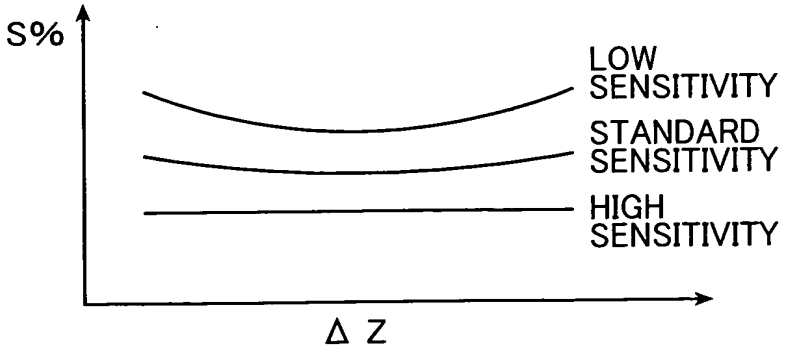
FIG.25
PRIOR ART